

THE INVENTION CLAIMED IS:

1. A transmission electron microscope comprising:

CCD detectors which have sensitive surfaces made of fluorescent material emitting light, fiber tubes for guiding said light from a respective one end thereof, a multiplicity of CCD elements connected with the other ends of the fiber tubes, and CCD mounts for holding the CCD elements, wherein

(A) a TEM image is projected onto the sensitive surfaces made of the fluorescent material to make the fluorescent material emit the light;

(B) the light is guided into the CCD elements by the fiber tubes and converted into electrical signals by the CCD elements;

(C) the TEM image is displayed based on the resulting electrical signals; and

(D) said CCD detectors are mounted such that their adjacent sensitive surfaces are connected seamlessly and that the other ends of the fiber tubes to which the CCD elements are connected are spaced from an optical axis outwardly to prevent the CCD detectors from interfering with each other.

2. The transmission electron microscope of claim 1, wherein each of the fiber tubes having the fluorescent material at its one end is placed obliquely with respect to the optical axis, and wherein an end portion of each fiber tube on which the fluorescent material is formed is cut obliquely and the cut sensitive surfaces of the fiber tubes are connected.

3. The transmission electron microscope of claim 2, wherein an end portion of each fiber tube on which the fluorescent material is formed is cut obliquely, and wherein end surfaces of the fiber tubes are scraped such that the cut sensitive surfaces are connected seamlessly.

4. The transmission electron microscope of claim 1, wherein the sensitive surfaces of the plural CCD detectors are connected seamlessly, and wherein the fiber tubes are bent outwardly from the optical axis.

5. The transmission electron microscope of any one of claims 1 to 4, wherein each of the CCD mounts has a CCD element-holding surface that is larger in size than the sensitive surface of the fluorescent material, and wherein the other ends of the fiber tubes to

which the CCD mounts are connected are spaced outwardly from the optical axis to prevent the CCD mounts from interfering with each other.

6. A transmission electron microscope comprising:

CCD detectors which have sensitive surfaces made of fluorescent material emitting light, fiber tubes for guiding said light from a respective one end thereof, a multiplicity of CCD elements connected with the other ends of the fiber tubes, and CCD mounts for holding the CCD elements, wherein

(A) a magnified and projected TEM image is guided onto the sensitive surfaces made of the fluorescent material to make the fluorescent material emit the light;

(B) the light is guided into the CCD elements by the fiber tubes and converted into electrical signals by the CCD elements;

(C) the TEM image is displayed based on the resulting electrical signals;

(D) the CCD detectors are juxtaposed;

(E) an electron beam deflection means is mounted between the array of the CCD detectors and the projector lens for projecting the TEM image onto the sensitive surface;

(F) a desired portion of a field of view is virtually split into plural parts;

(G) the electron beam is deflected by the deflection means such that each of the split parts of the field of view hits the sensitive surface of a certain one of the CCD detectors; and

(H) after gaining an image signal, the split parts of the field of view are combined.

7. A transmission electron microscope comprising:

CCD detectors which have sensitive surfaces made of fluorescent material emitting light, fiber tubes for guiding said light from a respective one end thereof, a multiplicity of CCD elements connected with the other ends of the fiber tubes, and CCD mounts for holding the CCD elements, wherein

(A) a magnified and projected TEM image is guided onto the sensitive surfaces made of the fluorescent material to make the fluorescent material emit the light;

(B) the light is guided into the CCD elements by the fiber tubes and converted into electrical signals by the CCD elements;

(C) the TEM image is displayed based on the resulting electrical signals;

(D) an electron beam deflection means is mounted between a single CCD detector and a projector lens for projecting the TEM image onto the sensitive surfaces;

(E) a desired portion of a field of view is virtually split into plural parts;

(F) the electron beam is deflected by the deflection means such that each of the split parts of the field of view hits the sensitive surfaces of the CCD detectors; and

(G) after gaining an image signal, the split parts of the field of view are combined.